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| 09/652,697 | 08/31/2000 | Duncan M. Kitchin | ITL.0406US (P8989) | 3821 |
| 21906 | 7590 | 07/11/2007 | EXAMINER | |
| TROP PRUNER & HU, PC | | | NGUYEN, LEE | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/652,697

Applicant(s)

KITCHIN, DUNCAN M.

Examiner

LEE NGUYEN

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-14 and 31-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-2,4-14,31-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 9, 12 and 31-42 are rejected under 35 U.S.C. 102(e) as being anticipated by Mansfield (US 6,704,346).

Regarding claim 1, Mansfield teaches a method comprising: determining a characteristic of a local noise source (slots 3, 6 in col. 11, lines 47-54, Table 2C, and interference in col. 9, lines 46-50) affecting a first transceiver (see Bluetooth (BT) device in col. 11, line 42); determining the length of an intended transmission (see adapted packet length, col. 12, line 30); using said characteristic and said length to predict a time when the effect of the local noise source would reduce for sufficient time for said intended transmission (col. 11, line 39 through col. 12, lines 40, see slots 1-2, 4-5, 7 and table 2C).

Regarding claims 9 and 12, the claims are interpreted and rejected for the same reason as set forth in claim 1.

Regarding claims 31, 35, and 39, Mansfield also teaches identifying information about the transmission slots of said local noise source (slots 3, 6 as bad slots, table 2C and col. 11, lines 50-54).

Regarding claims 32, 36 and 40, Mansfield further teaches determining the start point sequence of slots (see slots ahead 1-7 in table 2C).

Regarding claims 33, 37 and 41, Mansfield also teaches determining a particular slot is used for transmitting information (slots 3, 6 as bad slots, table 2C and col. 11, lines 50-54).

Regarding claims 34, 38 and 42, Mansfield also teaches using information about whether a slot is occupied to predict a time period of less noise from said noise source (slots 3 and 6 are bad so using slots 1-2, 4-5 and 7, see table 2C, col. 11, lines 50-54).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 6-7, 9-10, 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carlson (US 6,374,082) in view of Mansfield (US 6,704,346).

Regarding claim 1, Carlson teaches a method comprising: determining a characteristic of a local noise source affecting a first transceiver (col. 3, lines 38-47, periodic noise 10 and col. 4, lines 26-28); using said characteristic to predict a time when the effect of the local noise source would reduce (col. 3, lines 41-43, col. 4, lines 11-13, predicted quiescent period 11). Carlson does not explicitly teach in figure 4 that times $t(1)-t(2)$ and $t(3)-t(4)$ also contain the length of data packets to be transmitted so that the transmitted data will not be interfere with the noise source windows $t(0)-t(1)$ and $t(2)-t(3)$ in figure 1. In order to solve this problem, Mansfield teaches a method comprising: determining a characteristic of a local noise source (slots 3, 6 in col. 11, lines 47-54, Table 2C, and interference in col. 9, lines 46-50) affecting a first transceiver (see Bluetooth (BT) device in col. 11, line 42); determining the length of an intended transmission (see adapted packet length, col. 12, line 30); using said characteristic and said length to predict a time when the effect of the local noise source would reduce for sufficient time for said intended transmission (col. 11, line 39 through col. 12, lines 40, see slots 1-2, 4-5, 7 and table 2C). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Mansfield with Carlson in order to improve RF interference characteristics.

Art Unit: 2618

Regarding claim 2, Carlson as modified also teaches using the characteristic at the second transceiver or network node to control wireless information to the first transceiver or first node (col. 4, lines 10-13 of Carlson).

Regarding claims 6-7, Carlson teaches that the periodic noise 10 is detected and identified using either an AM demodulator or RSSI to generate a synchronization signal (col. 3, lines 42-47 and col. 4, line 10-11). Therefore, if using the RSSI, the AM demodulator is not used.

Regarding claims 9 and 12, the claims are interpreted and rejected for the same reason as set forth in claim 1.

Regarding claim 10, Carlson as modified teaches transmission of information during the quiescent period; therefore, it also reduces the probability of interference between said transmission and the local noise source.

Regarding claim 13, the transceiver 12 of Carlson is also a network node.

Regarding claim 14, Carlson also teaches the RSSI circuit (col. 3, line 45).

Claims 4-5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carlson in view of Mansfield as applied to claims 1 and 9 above, and further in view of Hess et al. (US 5,649,303).

Regarding claims 4 and 11, Carlson as modified fails to teach determining a probability of a transmission occurring at a given time from the noise source. In order to mitigate interference, Hess teaches determining a probability of a transmission occurring at a given time from the noise source on a channel (col. 5, lines 33-34 and line 47-48 and lines 20-21, not performing transmit and receive period). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the probability of Hess into the system of Carlson to mitigate interference when the determination of interference is unsure.

Regarding claim 5, Carlson as modified teaches delaying the transmission as claimed (not transmitting during noise is on, col. 4, lines 11-13 of Carlson).

Allowable Subject Matter

Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 8, the prior art of record fails to teach or suggest the step of receiving as claimed.

Response to Arguments

Applicant's arguments filed 4/10/2007 have been fully considered but they are not persuasive.

In the remarks, regarding the rejection of independent claims 1, 9 and 12, Applicant argues that Mansfield does not look at what the local noise is affecting a first transceiver, but, instead, determines what the interference is on different channel frequencies. See column 9, lines 29-35. He never determines what the noise is at the receiver, but, instead, looks at the noise on different frequency channels.

In response, if the receiver of Mansfield does not determine what the local noise affects the transceiver, there will be no indication in the channel black list. Applicant should refer to column 9, lines 15-50, the receiver measures the received signals to obtain the signal strength indicator (RSSI), thereby determining whether the channel is bad or good.

Applicant further contends that rather than determining the length of the intended transmission, he simply sets the packet sizes to avoid having to use the frequencies that have higher interference. See column 12, lines 27-35. In other words, the cited reference adapts the packet length "so that the 'bad' channels may be avoided." The idea here is not to change the length of the transmission, but to change the packet size to avoid having to extend into the bad channels that have frequencies more likely to be subject to interference.

Art Unit: 2618

In response, the claim only requires "determining the length of the intended transmission". Giving the broadest reasonable interpretation, this recitation corresponds to the determination which packet length to use (column 8, lines 47-52 and column 12, lines 35-39).

Applicant further argues that rather than predicting a time period for the transmission where the effect of the local noise source would be reduced, the cited reference, instead, selects frequencies with lower noise. Thus, although both references aim to reduce the effects of interference, they do so in substantially different ways.

In response, as indicated by Mansfield, under the Channel Frequency Look-Ahead Table, the packet with length Dx1 is used. The Channel Frequency Look-Ahead Table assigns channel frequency 19 to "future slot 3" and channel frequency 4 to "future slot 6". As the characteristic of these channels are bad, the Bluetooth device "avoids beginning transmission in future slots 3 or 6", emphasis added (column 11, lines 40-55). As a result, based on the noise characteristic of the measured channel frequencies 19 and 4, and the transmission packet of length Dx1, future interference slots 3 and 6 are not used for the transmitted packet Dx1.

Applicant further argues that finally, the combination of Mansfield and Carlson would be perplexing to one skilled in the art. They use totally different approaches and it would make no sense to pick and choose from one reference to use in the other. How to combine the two and what to pick and choose would be the problem. And, even if one picked and chose well, it still is not at all clear that one could come up with anything close to what is claimed. For example, Mansfield believes in selecting frequencies that

Art Unit: 2618

reduce interference and Carlson believes in detecting periodic noise using an RSSI signal and then generating a sync clock and a lock detect signal to control communications during quiescent periods in the noise. Thus, while Carlson is more time based, Mansfield is based on selecting frequencies, not times. There would be no way to determine how to combine these two references or why to combine the two references.

In response, referring to column 5, lines 33-42, Mansfield applies slots used in TDD.

One having skilled in the art understands that based on this fact the system of Mansfield is also a time base system like Carlson. Finally, since both Mansfield and Carlson are in the same field of endeavor, i.e., interference prevention, a skilled artisan would combine Mansfield with Carlson because it would improve interference characteristics (col. 3, lines 25-26 of Mansfield).

Conclusion

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of


Art Unit: 2618

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEE NGUYEN whose telephone number is 571-272-7854. The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ANDERSON D. MATTHEW can be reached on 571-272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


LEE NGUYEN
Primary Examiner
Art Unit 2618